AMENDMENTS TO THE CLAIMS:

Please cancel claims 1-19 and add the following new claims 20-38:

1-19. (Cancelled)

20. (New) A device for optically scanning a medium, said device comprising:

deflection mirror means including a deflection surface adapted to deflect light beams incident thereon and having a normal extending rectangularly to said deflection surface,

drive means coupled to the deflection mirror means for rotating the deflection mirror means about an axis of rotation, the surface normal being angularly tilted relative to the axis of rotation,

said deflection mirror means being located in a bearing-mounted fitting and provided with at least one compensation mass means so that the axis of rotation coincides with a principal axis of inertia of a combination consisting of the deflection mirror means and the fitting.

21. (New) A device according to claim 20, wherein the scanning medium is selected from the group consisting of a fluid medium, three dimensional objects and surfaces.

22. (New) A device according to claim 20, wherein the deflection mirror means deflects the light beams to a receiving system said receiving system comprising a telescope and a detector.

23. (New) The device according to claim 20, wherein the light beams come from a laser light source.

24. (New) The device according to claim 20, wherein the incident light is sunlight.

25. (New) The device according to claim 21, wherein the incident light is

emitted by surfaces.

26. (New) The device according to claim 20, wherein the angle between the axis of rotation and the mirror normal can be adjusted.

27. (New) The device according to claim 26, wherein a second drive unit is provided for adjusting the angle between the axis of rotation and the mirror normal.

28. (New) The device according to claim 20, wherein the position of the compensation mass means relative to the deflection mirror means can be adjusted.

29. (New) The device according to claim 28, wherein the deflection mirror means can be pivoted about a pivot axis perpendicular to the axis of rotation and wherein the compensation mass means is pivotable relative to the deflection mirror means about the pivot axis of the deflection mirror means.

30. (New) The device of claim 29 comprising a common drive unit for pivoting both said deflection mirror means and said compensation mass means about said common pivot axis.

31. (New) The device of claim 28, wherein the compensation mass means is a ring shaped element which surrounds the deflection mirror means.

32. (New) A system for optically sensing gases, in particular gaseous hydrocarbons, said system comprising

a deflection mirror means including a deflection surface adapted to deflect light beams emitted from said gases to be sensed said deflection surface having a normal extending rectangularly thereto,

drive means coupled to the deflection mirror means for rotating the deflection mirror means about an axis of rotation, said deflection surface having a surface normal being angularly tilted relative to the axis of rotation,

said deflection mirror means being located in a bearing-mounted fitting and

provided with at least one compensation mass means so that the axis of rotation coincides with a principal axis of inertia of a combination consisting of the deflection mirror means and the fitting.

33. (New) The system of claim 32, wherein said system comprises navigation means and is provided for installation in an aircraft.

34. (New) In a scanning system comprising a deflection mirror for deflecting light beams, said deflection mirror coupled to a drive unit for rotating the mirror about an axis of rotation, said deflection mirror having a deflection surface comprising a surface normal that is tilted relative to the axis of rotation of said deflection mirror, a method for optically scanning a medium, wherein said system is guided over the medium for scanning said medium while said mirror is rotated about said axis of rotation, and wherein at least one compensation mass is associated to said deflection mirror in such a way that the axis of rotation coincides with a principal axis of inertia of a combination consisting of the deflection mirror and a fitting supporting said deflection mirror.

35. (New) The method of claim 34, wherein said method is a method for the remote optical sensing of gases, in particular hydrocarbons.

36. (New) The method of claim 35, wherein said method is a method for monitoring buried pipelines using an aircraft.

37. (New) In a system for optically scanning a medium comprising a deflection mirror for deflecting light beams coming from said medium, the deflection mirror means being coupled to a drive unit and rotatable about an axis of rotation, said mirror having a normal being tilted relative to the axis of rotation a scanning method wherein the angle of tilt being continuously changed during rotation of said mirror.

38. (New) The method of claim 37, wherein said method is a method for the remote optical sensing of gases, in particular hydrocarbons.